



Report to the Connecticut General Assembly
Planning and Development Committee

Digitization of Building Code Records Working Group

January 2023

Prepared by the Department of Administrative Services

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Commissioner

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Introduction

To the Distinguished Members of the Planning and Development Committee:

Pursuant to Section 1 of Special Act 22-14, the Department of Administrative Services (DAS) hereby submits the below report regarding the digitization of building code records to the Planning and Development Committee.

Per the Special Act, DAS convened a Working Group to develop a standardized system for the scanning or other digitization of records relating to the State Building code, and a searchable public database. The Working Group was directed to:

“(1) consider best practices for (A) the use of various digital file types, (B) security protocols for electronic file storage, and (C) backup and recovery of electronic files, and (2) identify funding sources for implementation and maintenance of such system.”

Please note that a separate report will be submitted to the Planning and Development Committee addressing Section 2 of Special Act 22-14 regarding apprenticeships and training programs for building code officials.

Sincerely,



Darren Hobbs
Director of Regulatory Compliance
Department of Administrative Services

Executive Summary

Pursuant to Special Act 22-14, the Department of Administrative Services convened a Working Group and three focus groups consisting of subject matter experts in documentation relating to building codes, including experts in records retention, digital files, and local/regional government administration.

The task was to study options for creating a standardized digital system for records relating to the state building code. The group recognized that this work would be addressing two types of records (1) archived paper records, which would have to be scanned and organized into a digital system, and (2) new digital records, such as permits and related documentation, which are often processed via email or online permitting systems.

The study recognized that many municipalities have already dedicated efforts to digitizing records and have successfully implemented a cloud-based platform and online permitting system, and likely would not want to move away from a system that they have recently implemented. However, some municipalities have had challenges with implementing a digital records platform, such as issues with funding; ownership of data; and problems with accessing and migrating data when switching from one platform to another.

The Working Group concluded that there are certain minimum-security standards for electronic file storage and backup and recovery of electronic files, as well funding sources, that could be a baseline for municipalities in implementing a standardized system for the scanning or other digitization of records. The group also found that a regional model was helpful to several municipalities to procure an online permitting system and could be a viable pathway to a standardized system moving forward. The minimum standards, available funding sources, and regional model are detailed throughout this report.

Approach

Working Group

Special Act 22-14 was signed into law by Governor Lamont on May 24, 2022, and the Commissioner of the Department of Administrative Services convened the Digitization of Building Code Records Working Group to study the options for the scanning or other digitization of records relating to the State Building Code shortly thereafter, in June 2022.

The Digitization of Building Code Records Working Group meetings were held virtually via Microsoft Teams on the following dates:

- June 22, 2022
- July 27, 2022
- August 31, 2022 (rescheduled to September 7, 2022)
- September 28, 2022
- October 26, 2022
- November 30, 2022
- December 14, 2022

Working Group Members

The Digitization of Building Code Record Working Group was comprised of the following members:

Connecticut Department of Administrative Services	Michelle Gilman, <i>Commissioner</i> , or designee
Connecticut State Librarian	Deborah Schander, <i>State Librarian</i>
Representatives of the Connecticut Association of Zoning Enforcement Officials	Mike Glidden, <i>Cheshire Town Planner</i>
Connecticut Building Officials Association	Jeffrey Pooler, <i>President; also the Town of Southington Building Official</i>
Two regional councils of governments	Samuel Gold, <i>Executive Director, Capitol Region Council of Governments</i> Pauline Yoder, <i>Chief Operating Officer, Capitol Region Council of Governments</i>
Home Builders and Remodelers Association	Marc Michaud, <i>Representative</i>
Connecticut Town Clerks Association	Bonnie Armstrong, <i>South Windsor Town Clerk</i>
Connecticut Data Collaborative	Michelle Riordan-Nold, <i>Executive Director</i>
Connecticut Association of Municipal Attorneys	Kevin Deneen, <i>President</i>
Connecticut Business and Industry Association	Wyatt Bosworth, <i>Assistant Counsel</i>
Connecticut Construction Industries Association	Donald Shubert, <i>President</i>

Additional stakeholders and members of the above represented agencies attended the meetings and provided subject matter expertise. These individuals included:

Connecticut Department of Administrative Services	Darren Hobbs, <i>Director of Regulatory Compliance</i> Melissa Conway, <i>Director of Special Projects</i> Omarys Vasquez, <i>State Building Inspector</i>
Connecticut State Library	Elise Marzik, <i>Librarian 2</i> Allen Ramsey, <i>Assistant State Archivist</i> Barbara Austin, <i>Digital Records Archivist</i> Anna Newman, <i>Digital Records Archivist</i>
Connecticut State Representative	Representative Christine Goupil, <i>House District 35</i>

Working Group Discussion

The initial discussions by the Working Group, which included the Special Act's sponsors and supporters, highlighted the following principal drivers behind the creation of the Working Group:

- Smaller municipalities often share a building code official, and shared building code officials can more effectively collaborate utilizing a digital system.
- In municipalities with no digital system, there is no backup of documents. A digital system will provide municipalities with a replacement for and/or backup to paper files.
- Various municipalities require review of building code documents by multiple departments, such as planning and zoning or the fire marshal. A digital system allows concurrent review of documents across departments.
- When a customer requests copies of documents, it can often be cumbersome to share paper documents. A digital system increases customer access and transparency to public documents.
- Municipalities that currently utilize a digital system have faced challenges regarding data ownership when procuring or switching from one type of platform to another. Requiring minimal standards for building code platforms would make these transitions easier by creating a baseline and would support municipalities in choosing a platform that would best suit their security, backup, and record retention needs.

The Working Group reviewed these issues at a high level, before electing to form focus groups to provide a more detailed review.

Focus Groups

The Digitization of Building Code Records Working Group created three focus groups, made up of individuals from its own membership, as well as additional subject matter experts, for consideration of the following subjects:

- 1) Security protocols and backup and recovery of electronic files;
- 2) Record retention and digital document best practices; and
- 3) Funding.

The focus groups met throughout the months of September, October, and November and delivered their findings and recommendations to the Working Group at the November 30, 2022 meeting.

The findings of these focus groups are detailed in later sections of this report.

Scope of Records

Special Act 22-14 directs the Working Group to develop a standardized system for the scanning or other digitization of “records relating to the administration of the state building code.” One of the first tasks for the Working Group was to determine what types of records those are.

The Working Group determined that the “records relating to the administration of the state building code” include, but are not limited to, the following:

- Construction documents, including but not limited to:
 - Site plans / plot plan / drainage plans;
 - Building plans and specifications;
 - Code modifications (variances) issued for projects; and
 - Supplementary design team documents, including statements of special inspections and 3rd party reviews.
- Permit application forms, including but not limited to:
 - Contractor registration / licensing and insurance information;
 - Office of the State Traffic Administration letters; and
 - Worker’s compensation statements.
- Required close out documents, including but not limited to:
 - Blower door/ duct tests;
 - Concrete-source letters;
 - Final report of special inspections;
 - Final drawings reflecting as-built conditions, incorporating changes during project; and
 - Statements of professional opinion from project team that project complies with building code.
- Approvals of related departments, such as the fire marshal, the zoning department, and the health department;
- Building department approval documents, including but not limited to:
 - Permits;
 - Inspection reports; and
 - Certificates of approval or certificates of occupancy.

Municipal Survey

The Working Group wanted to better understand which municipal departments have already digitized their records, which digital records and online permitting document formats are most commonly used, and the rationale for municipalities in deciding to implement digital systems. In order to better understand the current landscape, the Working Group surveyed municipal building code officials to gather some baseline data about digital building code record platforms used across the state.

DAS issued a survey to municipal building officials via DAS’ Regulatory Compliance’s Building Official Listserv and 75 municipalities responded to the survey. Below is an overview of the survey questions and the themes from the responses.

Survey Questions

- 1) Have you digitized all or some of your existing paper building code records?
 - a. If yes, what platform/software do you use to access the documents
 - b. How long have you been using this platform/software?
 - c. Do other municipal departments also use this platform? If yes, please explain.
 - d. Please describe why you chose this platform/software.
 - e. Please estimate the percentage of digitization complete.
 - f. What format were these records digitized into (example: PDF)?
 - g. Are these digital records publicly available? Through what interface does the public have access to these records?
- 2) Do you currently use software for tracking permitting/inspection activity?
 - a. If yes, which software platform do you use?
 - b. How long have you been using a software for this purpose?
 - c. Please describe why you chose this software.
- 3) Do you accept all application material, such as plans, electronically?
- 4) Is there anything else you'd like to share about your municipality's digitization of building code records?

Survey Feedback and Themes

Although not all municipalities answered this survey, the results and feedback provided insight and background into the Working Group conversations. A summary of the responses is as follows:

- Common digital record platform providers across municipal building departments:
 - Viewpoint
 - Muncity
 - Opengov
 - PermitLink
- Common reasons for choosing these platforms:
 - User friendly
 - Accessibility
 - Integration with other municipality departments
 - Cost
 - Security
- Common file formats:
 - PDF
 - TIFF
- Some municipalities contracted or are currently contracting with a separate vendor to support scanning of records into the platform.
- Many of these platforms allow for front end customer permit applications and payment processing.

Security Protocols and Electronic File Backup and Recovery Focus Group Membership

- Darren Hobbs, Director of Regulatory Compliance, DAS – co-lead
- Melissa Conway, Director of Special Projects, DAS – co-lead
- Angela Taetz, Customer Success Manager, DAS

- Jeff Pooler, Building Code Official, Southington; President, Connecticut Building Officials Association

The Security Protocols and Backup and Recovery of Electronic Files Focus Group discussed statewide standards for security, backup, and recovery. The Focus Group gathered information from municipal stakeholders, regional councils of government, as well as standards used at the state for cloud services.

Findings

The Focus Group reached out to several building officials to discuss security standards for their record platforms. The group discovered that most municipalities that are using an electronic platform are relying on the permit software vendor to back up the data stored in the software. To ensure the safety of municipal and customer information, municipalities should consider how and where data is stored when procuring a vendor. In their research, the Focus Group found that many municipalities have two types of back up: (1) local back up in-house, and (2) back up in the cloud. In the cloud, the information is copied and stored in multiple locations for safe keeping.

The Focus Group also inquired about municipal policies regarding public's ability to view data and attachments in the permitting software. Most municipalities have not yet provided public access to their permitting software online – only a few municipalities have done so. In some instances, the software vendor has been hesitant to make information public.

The Focus Group also met with the Capitol Region Council of Governments (CRCOG) to learn more about their available vendors for Online Permitting Services. CRCOG conducted an RFP for online permitting services vendors, and two vendors are currently available to municipalities who participate in CRCOG's purchasing cooperative. CRCOG shared their RFP standards for a vendor, including their security and backup requirements. The group reviewed the RFP for minimum security and backup requirements and identified several recommendations:

- The system must have no security breaches or the vendor must explain security breaches, including steps taken to eliminate the potential for other similar security breaches.
- The system should have an uptime of 97% or greater in the last 12 months.
- Routinely scheduled system maintenance should occur during the hours between Midnight and 5:00AM or should be performed without disruption to customer operations.
- The system security should be configurable to allow or disallow groups of staff users to edit addresses on permit, license or inspection types where customers are not allowed to edit the address.
- The system must provide a way to flag a customer's record as protected / private such that their contact information will not be displayed on the public web site.
- Private contact information should be displayed to staff with an obvious visual indicator, such as appearing in red text or with an alert message right next to the address.
- The system should have the ability to define the online process that guides customers when logging in; individual municipalities should be able to change the online process described above independently of other municipalities.
- Agreements/contracts with a building code records management platform must state that any data in the records platform or cloud is the property of the municipality or public agency. The contract should ensure that the municipality has ownership over the data and timely access to export any data stored in the cloud or records platform.
 - Records platform/cloud vendors should have the ability to make information available to the public at the request of the municipality/public agency.
- If using a platform to store building code information and data, information should be backed up to the cloud. Municipalities should understand and receive documentation of the location of backed up data.

Lastly, the group reviewed state policies and procedures, including the Bureau of Information Technology's Cloud Questionnaire, for minimum standards used by the State of Connecticut when implementing a cloud-based software service or platform. The group recommends that municipalities should consult with their Information Technology (IT) departments when procuring a platform in order to ensure that the following considerations are made in the procurement of the platform:

- Does the data being hosted need to comply with federal information security law (e.g., HIPAA, PCI, PII, FTA, CJIS, FERPA, etc.)? If so, how does the vendor meet or exceed those requirements?
- Will the platform or cloud service be required to process, transmit and/or store any data that is federally regulated?
- Will the cloud service be required to process, transmit and/or store any data that is considered by the state and/or your agency to be confidential, classified, sensitive or otherwise controlled?
- Is any of the data stored in the system subject to FOI or legal hold? If so, what mechanisms are in place that will allow you to satisfy these needs?
- Has your agency classified the data you anticipate that the cloud service will transmit and/or store in accordance with municipal IT Policy?
- What mechanisms does the vendor offer, if any, to assist the state in migrating data off their solution if your agency desires to terminate your relationship with the vendor?
- Does the vendor run their own data center, or do they rely on the use of a separate cloud services provider? (e.g., Amazon Web services, RackSpace, Microsoft Azure, etc.).
- Where will the data reside geographically? This includes not only any primary data centers, but any other data centers that may provide replication and/or failover support.
- If the vendor does not provide service resiliency by means of physically separate data centers or failover environments, how does the vendor meet your agency's business continuity goals (availability, time to recovery, etc.) for the solution you seek to use?
- Does the vendor allow employees and/or subcontractors to access customer data? If so, in what cases is this allowed and how does the vendor monitor this activity for appropriateness?
- Is secure (authenticated) access required? If so, how is user authentication and authorization handled? Who is responsible for administering end-user security?
- How does the vendor secure and protect municipal data?

Funding Focus Group

Membership

Due to scheduling conflicts, this focus group was unable to meet as one team, but DAS led individualized meetings with members in order to identify potential funding sources for a digital records platform. Below are the stakeholders that were consulted for the funding focus group:

- Pauline Yoder, Chief Operating Officer, CRCOG
- Deborah Schander, State Librarian, CT State Library
- Jolita Lazauskas, Chief Financial Officer, DAS
- Martin Heft, Undersecretary, Intergovernmental Policy and Planning, OPM

Findings

As part of the municipal survey, the Working Group reached out to municipal stakeholders to get a sense of the cost of implementing an online permitting system. Midsize municipalities indicated that a digital records platform or online permitting system initially cost about \$65,000 and thereafter had about \$50,000 in annual platform fees for a records system that is deployed across all municipal departments (i.e. not just the building department, but for a system that includes workflows across the building department, fire marshal, planning and zoning, assessor,

etc.). In mid-sized municipalities with the software in only the building department and planning and zoning offices, the online permitting portal and required storage cost approximately \$9,000 annually.

The funding focus group determined that the cost of such a system is based on the size of the municipality, the number of documents and records processed, the number of departments that may use such a system, and the amount of storage needed. It is important to note that these cost examples do not include the cost of scanning and digitizing previous paper records – activities which could cost hundreds of thousands of dollars for each municipality depending on the number of paper documents. The digitization of existing paper records would require further study.

There are a variety of funding sources available at both the state and the federal level that municipalities can utilize for purposes of funding a digital records platform and online permitting system. The below section provides additional details on these funding sources.

State Funding

State of CT Regional Performance Incentive Program (RPIP), administered by the State Office of Policy and Management (OPM). In FY2022, \$5 million in funding is available statewide. Each approved grant may be up to three years in duration, with a required municipal match as follows:

Year 1	25%
Year 2	50%
Year 3	75%

The program would need to be self-funded by no later than the start of the fourth year. OPM anticipates future grant rounds to follow a similar timeline and process. Competitive applications would demonstrate the following:

- Potential to lower tax property burdens;
- Produce measurable economies of scale;
- Provide desired or required public services;
- Lower the costs and tax burdens associated with the provision of such services; and
- Efforts to regionalize.

Historic Documents Preservation Program, administered by the CT State Library. The Historic Documents Preservation Program supports municipalities in improving the preservation and management of local government records. These awards are less than \$10,000 and are based on the size of the applying municipality. Applications are twice a year, with Cycle 1 applications due April 30 and Cycle 2 due September 30th each year. The Historic Documents Preservation Program is supported through Connecticut real estate transaction fees.

Federal funding

Building Resilient Infrastructure and Communities (BRIC) funding is a FEMA program administered by Connecticut’s Division of Emergency Management and Homeland Security. This funding source aims to “incentivize investments that reduce risk.” Among various priorities, the most recent solicitation included priorities to “increase funding to applicants that facilitate the adoption and enforcement of the latest published editions of the building codes.” \$2.2 million was available in 2022.

- Allowable activities include: (1) Capability- and Capacity-Building (C&CB) activities, which enhance the knowledge, skills, expertise, etc., of the current workforce to expand or improve the administration of mitigation assistance. This includes activities in the following

subcategories: building codes activities, partnerships, project scoping, mitigation planning and planning-related activities, and other activities;

- Municipalities would have to include their building code digitization goals into a FEMA-approved mitigation plan or in a regional plan

Long term funding solutions

The Working Group identified several grant models that could incentivize municipalities to digitize previous records and to deploy digital records systems for future documentation. In 2002, the state administered a [Computer-Assisted Mass Appraisal System](#) grant program. This program, developed pursuant to Section 12-62f of the Connecticut General Statutes, provided grants in aid to each municipality to develop or modify a Computer-Assisted Mass Appraisal System and Property Tax Administration Computer System. Grant monies were based on municipal population.

Another example of a grant program is New York's [Local Government Records Management Improvement Fund](#). This fund provides grants for the purchase/development, modification of hardware and software, and training of municipal personnel. Awards are also for "managing inactive records, files management, management of historical records, and converting records to digital images."

This focus group recommends that the funding source for such a project address two areas:

- 1) Scanning and digitization of previous paper records; and
- 2) Permitting software or a digital records platform to support ongoing building department operations.

Several Working Group members suggested that the state issue an RFP and solicit vendors that meet the minimum security and backup requirements. Such an RFP would provide support to smaller municipalities that don't have the capacity to procure such a vendor on their own.

Record Retention and Digital Document Best Practices Focus Group

Membership

- Omarys Vasquez, State Building Inspector, Department of Administrative Services
- Elise Marzik, Records Management Analyst, CT State Library
- Allen Ramsey, Assistant State Archivist, CT State Library
- Mike Glidden, Cheshire Town Planner/Development Coordinator; Representative of Connecticut Association of Zoning Enforcement Officials
- Bonnie Armstrong, South Windsor Town Clerk, Representative from Connecticut Town Clerks Association

Findings

Public agencies, including all state agencies within the executive branch, as well as municipalities and other political subdivisions of the state, are required to comply with the following Policy and Standards for the management of electronic records and for scanning of records either in-house or using vendor services :

- Public Records Policy 04: Electronic Records Management ([link to document](#));
- Public Records Standards 04-1: Electronic Records ([link to document](#)); and
- Public Records Standards 04-2: Digital Imaging ([link to document](#)).

For destruction of records, public agencies must also abide by the following Policy:

- Public Records Policy 05: Disposition of Public Records ([link to document](#)).

The Office of the Public Records Administrator (OPRA) issues these policies under the authority granted to it by Connecticut General Statutes sections 11-8, 11-8a, 11-8b, and 7-109.

Records retention schedules published by OPRA establish retention requirements for public records. The current municipal M10 Land Use and Development records retention schedule is in the process of being updated to meet current industry needs.

A revised schedule that reflects current industry standards and regulations is necessary for the proper management of records. Industry leaders and subject matter experts are needed to assist in the review to provide recommendations including, but not limited to, consolidation of retention schedule sections and record series, assist in the development of record series descriptions, and provide feedback on the recommended minimum retention period for each record series.

The Office of the Public Records Administrator within the Connecticut State Library is identifying a committee to revise the municipal M10 Land Use and Development records retention schedule. The committee shall include one representative from the Office of Public Records Administrator, one representative from the Connecticut Chapter of the American Planning Association (CCAPA), one representative from the Connecticut Association of Zoning Enforcement Officials (CAZEO), one Building Official, and one town attorney.

It is proposed that this committee shall meet once a month, starting as soon as January 2023, once Working Group members have been identified. We project that this effort shall take approximately 12 months to provide a finalized updated M10 records retention schedule.

Conclusion and Recommendations

As the world continues to modernize, it is necessary for governmental agencies to continue efforts to utilize technology that promotes efficiency and transparency in government. There will be a continuing need to focus on digitization of records, especially across governmental agencies and municipal building departments. The below recommendations will support digital efforts across municipal governments:

Minimum standards for record retention platforms

Municipalities should adopt minimum standards for security, backup, recovery of files, record retention, and use of platforms, databases, and cloud services pertaining to online building codes. The Office of Public Records Administrator has the authority to write policies and standards for all state and municipal records, and municipalities, at a minimum, must follow these policies when implementing a digital records platform: (1) Public Records Policy 04: Electronic Records Management, (2) Public Records Standards 04-1: Electronic Records, and (3) Public Records Standards 04-2: Digital Imaging, when implementing a digital records platform for building code records.

Regionalization

In order to relieve the burden on municipalities to each develop their own policies, Regional Councils of Government (COGs) could consider creating a regional approach to a digital records platform. For example, the Capitol Region Council of Governments has created a regional co-op, which supports participating municipalities with the procurement of a building code record platform that meets the minimum requirements mentioned above. These services were originally procured using Regional Performance Incentive Program (RPIP) funding. This regional approach could be mirrored statewide. Regionalization would support smaller municipalities that don't have the capacity to procure a digital records system. Municipalities that regionalize these efforts could also potentially utilize RPIP funding as a startup for the costs of a system.